XIV. *Some Obſervations on the* Cancer Major, *by Mr.* Peter Collinſon, *F. R. S.*

Newport in the *Iſle of Wight, July* 1. 1745.

Read Feb. 20. 1745-6.

IN riding about this pleaſant Iſland, to ſee what was curious, or may deſerve a Traveller's Notice, I viſited a little Pariſh call'd *Crab-Nighton*, which probably has its additional Name from the Plenty of Crabs found on this Coaſt. What Intelligence I have gain'd from the Fiſhermen, and my own Experience on the Nature and Faculties of this Animal, I ſhall carefully relate.

The *Cancer Major*, or largeſt Species of Crab, have their chief Abode from twenty to forty Fathom Water; they herd together in diſtinct Tribes, and have their ſeparate Haunts for Feeding and Breeding, and will not aſſociate with their Neighbours. This has been carefully tried, by taking a Crab, and marking its Shell, and carrying it two or three Miles Diſtance, and leaving it amongſt the ſame Species — This Crab has found its Way back to its old Home, and has been caught by the ſame Fiſhermen that carried it.

The ſmalleſt Crab that comes to Hand is about the Size of a Cheſtnut; the full-grown ſeven Pounds Weight, but there has been one caught that weigh'd twelve Pounds. The Bait is Fleſh, or Pieces of Skait, or ſmall Shark, of which he eats but little. The Fiſhermen all agree, the Crab will live confined in the Pot or Basket ſome Months, without any Food but what is collected from the Sea-water, and not decreaſe in Weight. The Difference of Sex is very conſpicuous,

conſpicuous, and they are very prolific; but I could procure no certain Account of their Way of Coupling, nor in what Time they attained to full Growth.

Once a Year, like the Lobſter, they loſe or caſt their Shells. Againſt this extraordinary Change, they chooſe a cloſe and well-ſecured Retreat in the Cavities of Rocks, and under great Stones: There they creep in, and wait, until, by degrees, the Parts are diſengaged; which is effected by withdrawing their Legs from their old Shells, leaving them, and the upper Part of their Body-Shell behind.

In this naked State they make a very odd Appearance, being an ill-ſhapen Lump of Jelly-like Subſtance, which gradually hardens into a Shell a Size larger than the old one: For this is the Way of Growth appointed for this Animal, and others of the cruſtaceous Species. ——Theſe Hints I collected from People of good Character, whoſe Employ was always amongſt them.

But now I ſhall relate ſomething to this *Society* more wonderful, of my own Knowledge, which I hope may be worthy their Attention, being one of the moſt ſurpriſing *Phænomena* in Nature; which is, That this large Species of Crab has a Power in itſelf voluntarily to crack and break its own Legs or Claws, and drop them off.

The Reproduction of the Legs of Craw-fiſh has been mention'd in the *Hiſtory of the Royal Academy of Sciences*, with ſome juſt Remarks about the Growth of theſe Creatures Shells; but I don't know any Writer has taken notice of this ſtrange Event of the Crab.

Mr. *Benjamin Cook*, at *Newport* in the *Iſle of Wight*, a worthy Member of this *Society*, told me of this marvellous Property in the Great Crab; but I could not comprehend it, until I ſaw the Experiment tried on two Crabs; then I was ſoon convinced of the Truth of the Fact; for, in a few Minutes, the Legs all dropp'd off one after another.

This the Crab will do in any Poſition; but the eaſieſt Method is to lay it on its Back, and then take a Pair of ſtrong iron Pincers, and break the Shell, and bruiſe the Fleſh of the third or fourth Joint of its ſmall Leg: After it has received the Hurt, it bleeds, and gives Sign of Pain, by moving its Leg from Side to Side; but afterwards holds it quite ſtill, in a direct and natural Poſition, without touching any Part of its Body, or its other Legs, with it. Then, on a ſudden, with a gentle Crack, the wounded Part of the Leg drops off at the ſecond Joint, or *Internodium*, from its Body; juſt as one ſees the Neck of a Retort ſeparate, where it has been heated by a red-hot iron Ring, on the Application of cold Water. The great Legs are caſt off in the ſame manner, but are not ſo eaſily laid hold on as the ſmall ones.

Thoſe that have not ſeen this wonderful Operation may reaſonably conclude, that the Leg is caſt out of its Joint or Socket; but it is quite otherwiſe; for it cracks and breaks off in the ſmootheſt Part of the Joint, and the Rim of the Body-Shell is no-ways aſſiſtant to it.

To try what Effect Increaſe of Pain would have in this Work, a ſmall Hole was pierced in the great Legs, and then a pointed Iron was put in to lacerate the incloſed Muſcle: The Conſequence was anſwer-

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able to Expectation; Symptoms of greater Pain enſued, and the Leg was caſt off with greater Violence.

It is really amazing and inconceivable, by what Power or Contrivance in itſelf, ſo wonderful an Operation can be performed by the Crab, as voluntarily to crack and break ſo hard a Shell, and its Muſcles, and then caſt off its Legs. The ſmall Diameter of this Joint, the Diſpoſition of the Fibres, and a very ſmall circular *Foſſa*, may contribute greatly to accelerate the Work; but yet the main Spring of Action (for the preſent) ſeems beyond the Reach of human Comprehenſion. The whole Performance is ſo curious, and ſo ſingular a Fact in the Hiſtory of Nature, that it may well deſerve a nicer Conſideration, by thoſe that have greater Abilities, and more Leiſure, for ſuch Inquiries.

When the Leg is dropp'd off, a *Mucus* or Jelly is diſcharged on the remaining Part of the Joint next the Body, which, as a natural Styptic, inſtantly ſtops the Bleeding, and gradually hardens and grows callous, and forms into a Leg in Miniature, which, by degrees, ſhoots forth, and attains to its natural Size, to ſupply the Place of that which was loſt.

An Experiment was next tried, to ſee of what great Service the *Mucus* or Jelly was to the Crab. When its Legs were all caſt off, the Ends of two or three of the Stumps were pierced with a pointed Iron, ſo as to break off the Jelly that ſtopped them; upon which Signs of more intenſe Pain were exhibited, a very large Flux of Blood enſued, and the Creature ſoon died in great Agonies, as was manifeſt by a *Tremor* of thoſe Parts about the Mouth, and a Frothing like that which attends epileptic Fits.

It is reaſonable to conclude, that this wonderful Faculty, is given to the Crab for wiſe Ends and Purpoſes which will evidently appear when the Nature of this Animal is better known.

The Crabs are naturally very quarrelſome, and with their great Legs or Claws fight and kill one another: With them they catch hold of their Adverſary's Legs, and whatever they ſeize, they ſtrongly retain for a long while: There is no eſcaping their cruel Foe, but by voluntarily leaving a Part of the Leg behind, in Token of Victory; but the principal End for which this is done, is the ſaving the Life of the Conquer'd; for when they are bitten and bruiſed, and cannot break off that Limb, they ſoon bleed to Death.

The Fiſhermen ſhew'd an Experiment, to give us ſome Idea of the tenacious Diſpoſition of this Creature, by obliging a Crab with its great Claw to lay hold of a ſmall one: The ſilly Creature did not diſtinguiſh that itſelf was the Aggreſſor; but exerted its Strength, and ſoon crack'd the Shell of its own ſmall Leg, and it bled freely; but, feeling itſelf wounded, to ſave its Life required a Power peculiar to itſelf to break off that Limb in the uſual Place; which it preſently effected, and held faſt for a long time the broken Part in its great Claw: Which evidently ſhews, that this Creature retains whatever it lays holds on, and, when overcome by its Enemy, ranſoms its Life at the Expence of a Limb.